



Higher National Unit Specification

General information for centres

Unit title: Animal Biology

Unit code: DP4L 34

Unit purpose: This Unit is designed to provide candidates with an awareness of the characteristics of animals within the major animal phyla, the relationship between structure and function of major types of animal tissues and awareness of the relationships between the structure of different animals and their life in different environments.

On completion of the Unit candidates should be able to:

- 1 Describe the main characteristics of the major animal categories.
- 2 Describe the structure of major animal tissues and relate to function.
- 3 Describe animal body structures to function, including adaptations to different environments.
- 4 Perform practical investigations into animal body adaptations to different environments.

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. However, it would be beneficial if candidates have experience of studying Biology or Human Biology at Higher or equivalent, or had recent relevant work experience. Where the Unit is delivered as part of an HN Science Group Award, it is anticipated that candidates will have commenced or completed (DJ1K 34) Cell Biology: Theory and Practice prior to this Unit.

Core Skills: There may be opportunities to gather evidence towards Core Skills in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

General information for centres (cont)

Assessment: Outcomes 1, 2 and 3 should be assessed by a holistic end of Unit assessment under closed-book supervised conditions with a cut off score of 60%

Outcome 4 should be assessed by practical activity. Candidates should be assessed on practical ability, analysis of data, and on the quality of their laboratory report.

Higher National Unit specification: statement of standards

Unit title: Animal Biology

Unit code: DP4L 34

The sections of the Unit stating the Outcomes, knowledge and/or skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Describe the main characteristics of the major animal categories

Knowledge and/or Skills

- ◆ chordates
- ◆ non-chordates

Evidence Requirements

A candidates response will be judged satisfactory for this Outcome when the evidence provided is sufficient to show that the candidate is able to describe:

- ◆ **Chordates:**
 - cartilaginous and bony fish
 - amphibians
 - reptiles
 - birds
 - mammals
- ◆ **Non-chordates:**
 - Cnidarians
 - Platyhelminths
 - Molluscs
 - Arthropods
 - Annelids
 - Echinoderms

In order to achieve this Outcome, the candidate will need evidence to demonstrate that they have gained the Knowledge and/or Skills listed above. Assessment should be carried out under supervised, closed-book conditions. Evidence for this Outcome will be provided on a sample basis. In any assessment, candidates will need to demonstrate their knowledge of the main characteristics of the major animal categories, based on a sample of three out of the six animal categories mentioned in the Evidence Requirements for each Knowledge and/or Skills.

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Biology

Assessment Guidelines

Outcome 1 – 3 should be assessed as a holistic, closed-book, supervised test with a cut off score of 60%.

Outcome 2

Describe the structure of major animal tissues and relate to function

Knowledge and/or Skills

- ◆ Epithelial tissues
- ◆ Connective tissues
- ◆ Muscle tissues
- ◆ Nervous tissues

Evidence Requirements

In order to achieve this Outcome, candidates will need evidence to demonstrate that they have gained the Knowledge and/or Skills listed above.

A candidate's response will be judged satisfactory for this Outcome when the evidence provided is sufficient to show that the candidate is able to:

- ◆ describe the features that distinguish between Epithelial, Connective, Muscle, and Nervous tissues
- ◆ explain how the structure of each of these animal tissues is related to their main functions

Evidence for the Knowledge and/or Skills will be provided on a sample basis. In any assessment candidates will need to demonstrate that they can answer questions based on a sample of three out of four Knowledge and/or Skills items for this Outcome.

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Biology

Assessment Guidelines

Outcome 1-3 should be assessed as a holistic, closed-book, supervised test with a cut off score of 60%

Outcome 3

Describe animal body structures and relate them to function in different environments

Knowledge and/or Skills

- ◆ gas exchange
- ◆ locomotion and support
- ◆ nutrition
- ◆ transport
- ◆ excretion
- ◆ osmoregulation
- ◆ co-ordination and control
- ◆ reproduction

Evidence Requirements

In order to achieve this Outcome, the candidate will be required to demonstrate their knowledge and/or skills by providing correct responses to structured questions under supervised, closed-book conditions. A candidate's response will be judged satisfactory for this Outcome when the evidence provided is sufficient to show that the candidate is able to:

- ◆ describe the structures animals use for Gas exchange, Locomotion and Support, Nutrition, Transport, Excretion, Osmoregulation, Coordination and Control, or Reproduction
- ◆ describe at least two ways in which the structures animals use for Gas exchange, Locomotion and Support, Nutrition, Transport, Excretion, Osmoregulation, Coordination and Control, or Reproduction are adapted to different environments.

For this Outcome at least four of the eight Knowledge and/or Skills items listed above must be assessed on each occasion.

Higher National Unit specification: statement of standards (cont)

Unit title: Animal Biology

Assessment Guidelines

Outcome 1- 3 should be assessed as a holistic, closed-book, supervised test with a cut of score of 60%

Outcome 4

Perform practical investigations into animal body adaptations to different environments

Knowledge and/or Skills

- ◆ Practical skills related to animal body adaptations
- ◆ Work in a safe manner regarding current Health and Safety regulations
- ◆ Data recording, analysis and interpretation
- ◆ Presentation of Laboratory reports
- ◆ Report results clearly and concisely

Evidence Requirements

Candidates will need evidence to demonstrate their practical skills by showing that they can perform two investigations into animal adaptations to different environments.

Evidence for this Outcome should be gathered by the candidate performing at least two practical activities and should be recorded on a checklist. The candidate should also submit a formal laboratory report for one of the investigations.

Candidates should be assessed on both their performance in completing the laboratory work and on their ability to produce a satisfactory laboratory report.

Assessment Guidelines

This Outcome should be assessed by the use of at least two practical activities. This Outcome will be used to reinforce the theoretical knowledge gained in Outcomes 1, 2 and 3. Checklists to determine satisfactory performance during the practicals should be developed. The candidate should submit a formal laboratory report for one of the practicals.

Administrative Information

Unit code:	DP4L 34
Unit title:	Animal Biology
Superclass category:	RH
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History of changes:	SQA

Version	Description of change	Date
02	Minor text changes.	28/7/2008
03	Changes made to standardise assessment guidelines.	03/06/09

Source: SQA

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Higher National Unit specification: support notes

Unit title: Animal Biology

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit is designed to provide candidates with an overview of the animal kingdom. Representatives of the major animal phyla are used to ensure the candidates gain an awareness of the characteristics of categories of animals within these major animal phyla.

Outcome 1

Representatives of Non chordates can be taken from the following categories:

- ◆ Cnidaria: Hydrozoa, Anthozoa
- ◆ Platyhelminths: Turbellarians, Flukes, Tapeworms
- ◆ Molluscs: Gastropods, Bivalves, Cephalopods
- ◆ Arthropods: Crustaceans, Insects, Centipedes, Millipedes, Arachnids
- ◆ Annelids: Oligochaetes, Polychaetes, Leeches
- ◆ Echinoderms: Starfish, Sea Urchins

Outcome 2

A brief study of animal histology provides the opportunity to develop an understanding of some of the relationships between structure and function of major types of animal tissues.

Outcome 3

The study of the relationships between the body structures of different animals and their life in different environments will provide candidates with an overview of animal biology. Ideally an example of one chordate and one non-chordate will be used. Body structures could include the following:

- ◆ Locomotion and Support: swimming, walking, flying, hydrostatic skeletons, endoskeletons, exoskeletons
- ◆ Gas exchange: diffusion over body surface, gills and lungs
- ◆ Nutrition: filter feeding, tentacles, detritus, fluid feeding, biting and chewing
- ◆ Transport: Blood vascular systems, lymphatic systems
- ◆ Excretion and Osmoregulation: cell surface, Malpighian tubules, kidneys, liver, gills, lungs skin
- ◆ Coordination and Control: nervous systems and endocrine systems
- ◆ Reproduction: asexual and sexual reproduction in eg fish, amphibian, reptiles, bird and egg-laying mammals, and mammals

Higher National Unit specification: support notes (cont)

Unit title: Animal Biology

Outcome 4

Investigations might include:

- ◆ study of skeletons, museum specimens, videos of animal locomotion, observation of aquarium specimens eg. fish, snails, insects, starfish
- ◆ dissection of gills in fish/squid, lungs of sheep
- ◆ microscopic structure of lung, gill, kidney
- ◆ examination of vertebrate skulls — jaws and teeth, insect mouthparts
- ◆ dissection of cockroach and investigation of enzyme activity of gut contents

This Unit could lend itself to site visits to museums or living collections.

Open learning

If this Unit is delivered by open or distance learning methods, additional planning resources may be required for candidate support, assessment and quantity assurance. A combination of new and traditional authentication tools may have to be devised for assessment and reassessment purposes.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

General information for candidates

Unit title: Animal Biology

This Unit is designed to provide you with an awareness of the characteristics of animals within their major classification groupings.

You will look at the relationships between structure and function of major types of animal tissues and then study the relationships between the structure of different animals and they are adapted to life in different environments.

On successful completion of this Unit you will be able to:

- 1 Describe the main characteristics of the major animal categories.
- 2 Describe the structure of major animal tissues and relate to function.
- 3 Describe animal body structure to function including adaptations to different environments.
- 4 Perform practical investigations into animal body adaptations to different environments.

Outcome 1

You will look at the characteristics of animals representative of the major animal phyla. The assessment for this Outcome, which will be integrated with Outcomes 2 and 3, is a closed-book test. You will be expected to describe the main characteristics of the major animal categories.

Outcome 2

In this Outcome you will examine the distinguishing features of the four major animal tissues: Epithelial tissues; Connective tissues; Muscle tissues, and Nervous tissues. You will look at how the structure of these animal tissues is related to function.

The assessment for this Outcome, which will be integrated with Outcomes 1 and 3, is a closed-book test.

Outcome 3

In this Outcome you will learn about some of the many different structures animals use for Gas exchange, Locomotion and Support, Nutrition, Transport, Excretion and Osmoregulation, Coordination and Control, and Reproduction. The emphasis will be on how these structures are adapted to different environments.

The assessment for this Outcome, which will be integrated with Outcomes 1, is a closed-book test.

Outcome 4

During the work for Outcomes 1–3, you will be given a series of practical activities / laboratory investigations to complete.

To complete this Outcome you will be assessed during two practical activities. You will be assessed by checklists and by your submission of a laboratory report.